Douglas Coates

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RESEARCH POSITIONS

Postdoctoral Research, FAPERJ Nota 10 position under the supervision of Katrin Gelfert, Universade Federal do Rio de Janeiro, Brazil — April – Present

Postdoctoral Researcher, FAPESP funded position under the supervision of Ali Tahzibi, Universidade de São Paulo, São Carlos, Brazil — Jul. 2023 – Apr. 2025

Postdoctoral Research Associate, EPSRC funded position under the supervision of Mark Holland, The University of Exeter, Exeter, United Kingdom — Apr. 2022 – Apr. 2023

Postdoctoral Researcher, under the supervision of Sylvain Crovisier, Université Paris Saclay (CNRS), Paris, France — Sep. 2021 – Mar. 2022

PUBLICATIONS AND PREPRINTS

[1] Douglas Coates and Katrin Gelfert. *Hausdorff Dimension of Sets of Generic Points for Non-statistical Dynamical Systems*. Aug. 29, 2025. arXiv: 2509.00241 [math].

[2] Douglas Coates and Ian Melbourne. *Global-Local Mixing for Intermittent Maps with Multiple Neutral Fixed Points*. May 12, 2025. arXiv: 2505.07492 [math].

[3] Douglas Coates and Stefano Luzzatto. "Persistent Non-Statistical Dynamics in One-Dimensional Maps". In: *Communications in Mathematical Physics* 405.4 (Apr. 9, 2024), p. 102. ISSN: 1432-0916. DOI: 10.1007/s00220-024-04957-0.

[4] Douglas Coates, Ian Melbourne, and Amin Talebi. *Natural Measures and Statistical Properties of Non-Statistical Maps with Multiple Neutral Fixed Points*. July 9, 2024. arXiv: 2407.07286 [math].

[5] Douglas Coates, Stefano Luzzatto, and Mubarak Muhammad. "Doubly Intermittent Full Branch Maps with Critical Points and Singularities". In: *Communications in Mathematical Physics* 402.2 (Sept. 1, 2023), pp. 1845–1878. DOI: 10.1007/s00220-023-04766-x.

[6] Douglas Coates. "Semi-Stable Laws for Intermittent Maps". University of Exeter, 2021. URL: https://ore.exeter.ac.uk/repository/handle/10871/124410.

[7] Douglas Coates, Mark Holland, and Dalia Terhesiu. "Limit Theorems for Wobbly Interval Intermittent Maps". In: *Studia Mathematica* 261.3 (2021), pp. 269–305. ISSN: 0039-3223. DOI: 10.4064/sm200427-21-11.

EDUCATION

PhD. Mathematics, under the supervision of Mark Holland and Dalia Terhesiu, — Oct. 2016 - Jan. 2021

MSci Mathematics, University of Bristol — Sep. 2012 - Sep. 2016

VISITING POSITIONS

Visitor of *Katrin Gelfert*, **Universidade Federal do Rio de Janeiro**, Rio de Janeiro, Brazil	Jun. 2023
Visitor of *Lorenzo Diaz*, **Pontifícia Universidade Católica do Rio de Janeiro**, Rio de Janeiro, Brazil	May 2023
Visitor of *Ali Tahzibi*, **University of São Paulo, ICMC**, São Carlos, Brazil	Nov. 2022
Visitor of *Marcelo Viana*, **Instituto de Matemática Pura e Aplicada**, Rio de Janeiro, Brazil	Oct. - Nov. 2022
Visitor of *Stefano Luzzatto*, **The Abdus Salam International Centre for Theoretical Physics**, Trieste, Italy	May - Dec. 2022
Visitor of *Stefano Luzzatto*, **The Abdus Salam International Centre for Theoretical Physics**, Trieste, Italy	Feb. - Aug. 2021

TEACHING, SUPERVISION AND OUTREACH ACTIVITIES

Teaching positions

Lecturer, International Mathematics Master, Algeria *Responsibilities*: lecturing, course design, exam writing, *Courses*: 30 hour post-graduate course in probability theory	Dec. 2024
Teaching Assistant, Universidade de São Paulo (ICMC), São Carlos, Brazil *Responsibilities*: lecturing, *Courses*: post-graduate course in ergodic theory,	Aug. 2023 - present
Academic Program Manager and Senior Tutor, International Mathematics Master (ICTP-UNESCO development program in COMSATS University, Lahore, Pakistan), *Responsibilities*: problems classes, lecturing, course preparation, administration, exam writing, supervision of master's thesis *Courses*: post-graduate courses in commutative algebra, real analysis and measure theory, differential geometry, probability, dynamical systems, functional analysis, differential equations	Jul. 2020 - Jan. 2022
Teaching Assistant at ICTP, Trieste, Italy *Responsibilities*: problems classes, homework marking *Courses*: dynamical systems and ergodic theory (master's level)	Feb. - Aug. 2021
Teaching Assistant at the University of Exeter, Exeter, UK *Responsibilities*: problems classes, exam marking, homework marking *Courses*: mathematical structures (1st year), mathematical methods (1st year), signals series and transforms (2nd/3rd year), stochastic processes (2nd/3rd year), metric spaces and topology (3rd/4th year)	2016 - 2020

Short courses

Some statistical properties of non-statistical maps - 6 hour mini-course, ICMC USP, May 2024	
Markov-chains and the Perron-Frobenius theorem - 6 hour online preparatory mini-course for the "VII Escola Brasileira de Sistemas Dinâmicos"	Oct. 2023
Limit theorems in dynamical systems using transfer operator methods - 6 hour mini-course joint between PUC-UFRJ	Jun. 2023

SELECTED RESEARCH TALKS

Hausdorff dimension of sets of generic points for non-statistical interval maps, Universidade do São Paulo, — Aug. 2025

Global-local mixing for maps with several neutral fixed points, Brazilian Colloquium of Mathematics, IMPA Brazil — Jul. 2025

Weak physical measures and statistical properties of some non- statistical maps, Dynamical systems seminar Universidade Federal do Rio de Janeiro, Brazil, — Apr. 2024

Persistent non-statistical behaviour in one-dimension, Conference on Dynamics and Finance: from KAM Tori to ETFs, International Centre for Theoretical Physics (ICTP), Trieste, Italy — Oct. 2023

Persistent non-statistical behaviour in one-dimension Dynamical systems seminar Instituto de Matematica pura e Aplicada, Rio de Janeiro, Brazil — July 2023

Persistent non-statistical behaviour for interval maps with neutral fixed points EDAÌ seminar, Pontifícia Universidade Católica do Rio de Janeiro, Brazil — May 2023

Persistent non-statistical behaviour for interval maps with neutral fixed points University of Exeter, Exeter, United Kingdom — Apr. 2023

Limit theorems for intermittent maps with critical points Dynamical systems seminar, Universidade de São Paulo, São Carlos, Brazil — Nov. 2022

Intermittency and non-statistical behaviour Jangada Dinamica Conference - Universidade Federal do Ceará Fortalexza, Brazil — Nov. 2022

Stable laws for intermittent maps with critical points and/or singularities Dynamical systems seminar, Université Paris Saclay, Paris, France — Sep. 2021

EVENTS ORGANISED

[Probabilistic methods for non-stationary dynamical systems](#) - two day meeting and workshop on the applications of probabilistic techniques to random and non-stationary dynamical systems. *University of Exeter* — April 2023

LANGUAGES

English - Fluent,   Italian - Fluent,   Spanish - Fluent,   Portuguese - Profficient.